

## Collecting in Asia Minor in 1920.

By MAJOR P. P. GRAVES, F.E.S.

## I.—Near Smyrna.

Till recently collecting near Smyrna had been undertaken by a very few German or Austro-Hungarian lepidopterists and by these prior to 1880, after which year brigandage reached dangerous proportions and remained dangerous until the Greek occupation. Dr. Loew, the famous dipterist and the discoverer of *Plebeius loewii*, visited the neighbourhood in the early forties of the last century, but the first lepidopterists, who made any long stay there, were Janes von Frivaldszky, Terren and Zach, who visited the city in 1845. They seem to have found the region unproductive—such at least is Dr. Staudinger's account in his study of the Lepidoptera of Asia Minor, but I suspect that they found it too disturbed to go far inland. Anyhow Terren was finally left to rear *Lasiocampa (Pachyypasa) otus* larvæ to the chrysalid stage and his comrades departed to Brusa. In 1865 Lederer spent a great part of the season at Magnesia (Manissa) and in the Smyrna region. During the previous year he had done some collecting at Gineo, near Eudemish at Kizilji Auly or Aoli, the "Reddish sheepfold," an estate managed by the old collector Nogell in the Boz Dagh Range and in the Ovajik Range, and had stayed for seven weeks in the centre of the Boz Dagh Range itself, proof positive that the country was then in better order than it was in more modern times, when the Boz Dagh was a great centre of brigandage. Unhappily Lederer does not seem to have published anything as to the results of his collecting in 1865. Most of our limited information as to the insects occurring near Smyrna has been supplied by Dr. Krueper, whom I met at Athens early in 1915. Dr. Krueper collected at or near Smyrna from Feb. 6th to July 17th in 1863, from Feb. 18th to July 28th in 1866, from March 2nd, 1871, to July 13th, 1872 (except for the period May 2nd to June 10th, 1872, when he stayed at Nymphio), and finally from April 2nd to April 17th in 1875. Most of his collecting was done at Burnabad (also known as Burnabat or Burnova), a very pleasant village where many of the European residents of Smyrna dwell, situated at the foot of a mountainous region, some five miles from Smyrna. He found the old Turkish cemetery the best collecting ground. When I visited the village Greek 6 inch howitzers filled the cemetery. Near Buja, where there is some pretty country, there were large camps, and I, therefore, did little collecting there, not that the Greek soldier is nowadays indisciplined or disagreeable, but because camps always mean sentries, persons who ask you for passes, or cheerful inquisitives who want to know whether you mean to eat 'em when you catch them, or what, or worse still, the would-be-usefuls who pursue the most battered and commonest specimens with excess of zeal, and bring them to you minus heads and a wing or so. My collecting was therefore practically confined to two points—the hills beyond Cordelio, a suburb on the N. side of the Gulf of Smyrna, and the hilly pass between Burnabat and Manissa, some 6 miles at my furthest point from Burnabat on the reverse (Manissa) slope of the mountain country. The weather was excellent. The country under the stern but just rule of the Greek Harmost, Mr. Sterghiades, was as safe as England. I indeed just missed seeing the

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public execution of the leaders of the last batch of brigands who, though Greeks, were yet hanged as high as Haman by the orders of the hard handed Cretan who rules Smyrna to-day for Greece. They had murdered some 15 people, Greeks and Turks, in their long career, and no one sympathised with them.

The general impression I had from two afternoons' collecting and an hour's pottering about with a net near Buja, was that the country, where not too well cultivated, was fairly prolific in butterflies, but that, as in Attica, which it to some extent resembled in its flora, though it was less dried up, the number of species on the lower ground was more limited than is the case in moister and later Constantinople. The season seemed to be nearly a month earlier than on the Bosphorus. Thus *Aporia crataegi*, which near the Bosphorus does not emerge till late in May, was well out on April 21st near Cordelio. Males of *Leptosia duponcheli* were very worn for the most part on the Burnabat-Manissa road on April 23rd. I found them fresh at Dil Iskelessi, one of the hottest localities in the Constantinople region, on May 2nd, 1914. The "whites" were all but over and *Rumicia phlaeas* likewise. *Thais cerisyi* gave me a disappointment. I expected to find it fresh and frequent. The only specimen I caught was worn. I saw a very few others, mostly worn from the look of them, in places where I could not catch them.

At Cordelio, or rather about 500 feet above it on a stony plateau, I found *Hallia marloyi* frequent on April 21st. It is very hard to catch and easily injured in the catching. Its habits were of interest. It generally selected the tops of boulders to rest upon and was not easily seen there. Pairs of this insect, male and female I imagine, though I could not actually prove this by capturing both at a time, flew about at a height of from 2 to 3 feet above the ground with a curious buzzing flight such as is noticed with other "skippers," one individual, perhaps the male, keeping about 6 inches immediately behind his companion. Then suddenly, for no apparent reason at times, at other times when disturbed, the leading insect of the pair would shoot up about ten feet in the air and turn in its flight so rapidly that one was left with the impression that it had "looped the loop," and the second insect would follow its course and imitate its action, both, after "towering" in this fashion, making off at great speed.

The pass on the well-kept carriage road between Burnabat and Manissa struck me as being good collecting ground as did the country about 5 miles further inland also on the line of this road. But on the occasion of my visit there was a good deal of cloud and my time was limited. *Hesperia malvae*, a fresh female, was an interesting capture here. I had no time to go high into the mountains near Smyrna, Tahtali Dagh, Nif Dagh, etc. These might have proved productive even so early in the year.

The following species were either captured or certainly recognised between April 19th and April 23rd.

*Hallia marloyi*.—Frequent above Cordelio on April 21st. Three seen, two taken, between Burnabat and Manissa, April 23rd.

*Erymnis alceae*.—A few worn specimens noted.

*E. orientalis*.—Two fresh males, not differing from the Constantinople form, at Cordelio and on the Manissa Burnabat road respectively, April 21st and April 23rd.

*H. ? malvae*.—A fine female apparently of this species on the Manissa-Burnabat Road on April 23rd.

*Powellia orbifer*.—Beginning to appear above Cordelio and on the Manissa-Burnabat Road, April 21st and 23rd. Males only seen.

*Eumicia phlaeas*.—Usually worn and not common at all stations. The only specimen taken in good order was distinctly on the way to *aestivus*, having the black margin of the forewings and the black spots on these wings larger than in normal near eastern vernal specimens.

*Callophrys rubi*.—Two in fair order at about 900 feet on the pass behind Burnabat on April 23rd.

*Celastrina argiolus*.—Seen in the Consulate and Garden at Smyrna on April 20th.

*Scolitantides (Turania) baton*.—One fresh male taken with *C. rubi* on April 23rd.

*Aricia medon*.—Abundant and generally fresh near Cordelio on April 21st. Frequent at other stations. The form resembles that taken at Athens.

*Polyommatus icarus*.—Generally frequent. Females not yet fully out. The form taken here is distinctly nearer *zelleri*, Vrtz., than that found at Constantinople and resembles the Athens form. Such females as were taken were but slightly, when at all, suffused with blue scales,

*Iphiclides podalirius*.—Seen here and there but not taken.

*Thais cerisyi*.—Not at all common, and worn.

*Aporia crataegi*.—Abundant above Cordelio and seen near Burnabat on April 22nd.

*Pieris brassicae*.—Going over. Seen in small numbers at all stations. I was doubtless too late for the main flight of the first brood.

*P. rapae*.—The same remarks apply to this species as to *P. brassicae*.

*P. daphidice*.—A few specimens of the vernal form of *daphidice* were taken.

*Anthocharis crameri (belia) var. graeca*.—Two specimens taken at Buja, April 20th. Others seen.

*Euchloë cardamines*.—A male on the pass above Burnabat, April 23rd.

*Colias edusa*.—Seen in small numbers.

*Gonepteryx cleopatra*.—A male seen near Burnabat on April 22nd. Unluckily I could not catch it so cannot say whether it belonged to the Greek form or to var. *taurica* of S. Asia Minor, Syria and Cyprus.

*Leptosia sinapis*.—Sparingly on the Burnabat-Manissa Road on April 23rd.

*L. duponcheli*.—Local on the same road on April 23rd but much more frequent than *L. sinapis*. One female taken. I notice a marked, probably racial, difference between the seven specimens I brought back and those I have of the vernal brood from Dil İskelessi, between Ismid and Constantinople (14 specimens) on the one hand and a male Syrian specimen from Baalbek on the other.

*Pyrameis atalanta*.—Seen April 20th, in Smyrna town.

*P. cardui*.—Only a few battered specimens noticed.

*Melitaea phoebe*, var. ?—A fine specimen taken on the roadside on April 23rd and another seen. The specimen taken differs somewhat from the Athens form and very much from that which I have from Bithynia.

*Melitaea trivia*.—Larvæ of this species seen on *Verbascum thapsus* on April 23rd.

*Pararge megera*.—Not uncommon at Buja, April 20th. Seen at Cordelio and Burnabat.

*P. maera*.—One fresh male seen and missed above Cordelio on April 20th.

*P. aegeria*.—A very much damaged female taken on April 23rd.

*C. pamphilus*, race *marginata*.—Sparingly at all stations. The specimens I brought back much resembled those I have from Constantinople except that they are perhaps a trifle lighter on the underside of the hindwings than the latter.

Total 31 species.

## II.—Panderma.

During a visit, which I paid to Panderma as the guest of the Greek fleet at the beginning of July, when the town was captured by the Hellenic forces without opposition, I was able to get two afternoons off, *viz.*, on July 4th and July 6th at Tut Liman (Mulberry Port) about a mile to the E. of Panderma. Tut Liman is a creek behind which is a valley full of olive, mulberry and fig orchards, watered by a small perennial brook, and bordered by steep rocky slopes. Though facing north it is extremely hot and proved a good hunting ground.

Three Lycænids (*sensu lato*) were very abundant among the trees early in the afternoons, swarms rising from the ground as one walked through the shady patches. These were *Agriades thersites*, *Aricia medon*, and *Rumicia phlaeas*. *A. thersites* was out in far greater numbers than *Polyommatus icarus*, of which I saw a few specimens. It has certainly appeared to me that this species, in its second brood at all events, comes out earlier than *P. icarus* and that the "brood" is more concentrated, so to speak, large numbers appearing in favourable localities while *P. icarus* has a slow, more graduated emergence. Among the specimens of *A. thersites* is a ♀, which while identical with local and Constantinople specimens of *A. thersites* as far as the colour of the upperside, and the arrangement of the underside spotting was concerned, had a tiny single basal spot on the underside of the anteriors. I am not sure whether this is a case of accidental resemblance to *A. thersites* by an aberrant *P. icarus* female or an aberration of *A. thersites*. I may note that in the Sea of Marmora region I have never yet found any approach to *A. thersites* among females of *P. icarus* as far as the arrangement of the spots near the tornus of the underside anterior wings and near the costal margin of the underside hindwings is concerned. *A. medon* and *R. phlaeas* were large and the former was very decidedly of the *calida* form. *R. phlaeas* was of different forms, *eleus* being the lightest and not the most frequent. Other insects noted included *Satyryx syriaca*, which was quite frequent among the olive trees, and *Hipparchia briseis* var. *major*, a fine large race, of which I did not bring back nearly as many as I should have done. It was very wary and the place where it was commonest—namely, the sea cliffs near the port railway station, W. of the town—proved very difficult and treacherous ground when I tried to work it for about 40 minutes in the late afternoon of July 7th. *S. circe* was worn. *Hyponephele lupinus*, of a form which seemed to me to approach *intermedia*, occurred very sparingly in the shadiest portions of the orchards.

My captures here were the following :—

*Erynnis alceae*.—A few second brood specimens seen. Those taken were normal enough.

*Powellia orbifer*.—One worn out female of the first brood.

*Thymelicus actaeon*.—One passable female. Many more seen, all utterly worn out.

*Adopaea flara*.—In even worse condition than the preceding.

*Rumicia phlaeas*.—Large dark forms abundant.

*Chrysophanus thersamon*.—Not uncommon and fresh; males slightly lighter than the Constantinople average.

*Loweia dorilis*.—One male captured, others seen.

*Celastrina argiolus*.—A few, worn as a rule, in the orchards.

*Aricia medon* g.a. *calida*.—Abundant and generally fresh.

*Polyommatus icarus*.—Not frequent. Very normal specimens of the Mediterranean form.

*P. admetus*.—One very fresh male on July 6th at Tut Liman.

*Agriades thersites*.—The most abundant "blue" by far. Males well out.

*Iphiclides podalirius*.—Not uncommon in the orchards.

*Pieris brassicae*.—Rare.

*P. rapae*.—Fairly frequent in the orchards. Of three ♀ brought back two are very heavily marked with black and one has the right antenna about  $\frac{1}{4}$  the length of the left antenna.

*P. napi*.—Males only were taken. These had extremely little dark shading along the veins of the underside hindwing.

*Pontia daphidice*.—Not common.

*Colias edusa*.—A few.

*Leptosia sinapis*.—Rare. The two specimens which I brought back are quite normal southern second-brood specimens.

*Dryas pandora*.—A few on thistles.

*Pyrameis cardui*.—Frequent.

*P. atalanta*.—One damaged specimen released.

*Limnitis camilla*.—In bad order and not frequent.

*Pararge megera*.—Second brood specimens ♂s only, beginning to emerge.

*P. maera*.—One second brood ♂ specimen unfortunately damaged.

*P. aegeria*.—In shady places. The form was simply *intermedia*, brighter in ground colour and with yellower spotting than *egerides*, but nowhere near the brightness of ground colour and rich yellow spotting of specimens from Athens and Syria.

*P. roxelana*.—From the number of damaged females flying about in shady places this species must have been frequent a month earlier.

*Satyrus circe*.—Going over.

*S. syriaca*.—Frequent and often in good condition. Of large size and deep colour.

*Hipparchia briseis*.—Frequent. All taken are of the race *major*. In good order as a rule.

*Hyponephele lupinus* v. *intermedia*.—Local and sparingly.

*Epinephele jurtina*.—Females only.

*Coenonympha pamphilus*.—All taken were g.a. *marginata* of the race *lyllus*.

*M. galathea* race *turcica*.—Very worn. Had been frequent.

*M. larissa*.—Very worn. Had evidently been common, ♀s only taken.

Total, 35 species. The absence of *H. semele* may surprise the reader as it surprised me.

### III.—Brusa.

From September 19th to September 21st inclusive I was at Brusa. I collected daily but did not venture up the mountain, since this huge area of rock, forest and gully is altogether too large to be patrolled by the Greek forces now holding Brusa, and it would have been unfair to ask the Hellenes for gendarmes for special protection of a casual visitor. On the 19th I went down early to the marsh known as Softa-Bughan (the Softa Swallow, so-called because a Softa or theological student once perished there) to look for *Chrysophanus dispar* v. *rutilus*. The marsh was too dried up to be in the least dangerous, and there were fewer patches of dried mud and reeds in it than there were banks and islands of firm and solid ground. Flowers were still fairly numerous, thistles, various kinds of spearmint, a sort of agrimony, etc., but butterflies were rather uncommon. The commonest although the hardest to catch was *Everes argiades* of the third brood, a very small form indeed. It differed greatly from the *Everes* which I have taken at Kury Yalova, and which I suppose to be *E. alcetas*. The small Brusa insect has a good show of orange spotting near the anal angle underside hindwing. The sub-marginal spots on the underside of the anteriors are of linear shape, less round than those of the Yalova species, and their alignment is slightly different in some specimens. The tails of the hindwings are more developed in the supposed *argiades*. On the other hand the supposed *alcetas* from Yalova has very faint traces of pale yellow scaling about the ocellated spot on the underside of the hindwings near the anal angle, though I do not believe that such traces of yellowish scaling, if present in an *Everes*, must necessarily prove that it is not *alcetas*. I took a short series, mostly consisting of males here, and afterwards found the insect elsewhere near Brusa always in moist localities. It was hard to catch and easily damaged in setting. Of *C. rutilus* I only took 2 worn and rather chipped females that day.

Next day I went out on a picnic to Kestel some 9 miles E. of Brusa. I had little time for collecting there, but saw two male *C. rutilus* in an overgrown irrigation ditch and caught both. They were slightly chipped but in good condition otherwise, and one was of fair size. Very lovely they looked in flight. *Lamprodes boeticus* occurred here in fields where a sort of runner bean was cultivated, I think the Leblebé, a plant akin to *Dolichos lablab* of Syria. I fear I neglected *L. boeticus*. I have seen so much of it in Egypt and parts of Syria, and save in size it is so distressingly invariable. Anyhow I only brought back one pill-boxed specimen and it proved to be damaged. Other things taken here were *Leptosia sinapis* of the third brood (rare), *P. aegeria* and *Polyommatus icarus*. On the previous day I had worked a steep slope above Chekirgeh to the W. of Brusa town, and found *P. icarus* abundant and with it plenty of *Aricia medon* in bad order, *P. anteros*, fresh males, and a few *L. dorilis*. All of the last species I could take I took, and all were fresh but with great splits and chips in their wings. The form did not differ from that of Constantinople.

On the 21st I spent a long morning among the orchards to the N. of Brusa. Here I took four fresh *C. rutilus* among the ditches, three fine males and a chipped female, and also a fresh male of *C. thersamon*. There was a good deal of dock in the ditches which did not seem to me to be big enough to be the Great Water Dock. In most places where this dock grew one might see a male *rutilus* darting about, but it was a lively insect and seeing it was one thing and catching it another, especially where brambles overhung the ditches. One male has a well marked spot between the discoidal spot and the base on the upperside of the anteriors. Has this form been named? I devoted some attention to third brood *Pieris rapae* and *P. napi*. The former resembled the Constantinople autumn race of *P. rapae* which has a facies of its own as compared with the first and second broods. *P. napi* showed in one or two cases more black scaling along the venation of the hindwings on the underside than is usual on the Bosphorus. I neglected *P. brassicae* rather to my regret, as I might have taken several specimens and had meant to try to find out whether the Brusa insect of the third brood was *P. brassicae* proper as are Constantinople autumn specimens for the most part, or approached g.a. *catoleuca*, Röber, which is the usual East Mediterranean summer form in my limited experience.

The following species were taken or recognised at Brusa.

*Erynnis alceae*.—Frequent everywhere.

*E. orientalis*.—One female.

*Hesperia (Hallia) malvae*.—One very worn male at Kestel.

*Hesperia armoricanus*.—One worn male below the town.

*Powellia orbifer*.—A few worn-out females of the small second brood.

*Chrysophanus thersamon*.—One male only.

*C. dispar* var. *rutilus*.—In the orchards, etc., below the town, and at Kestel. See remarks above.

*Loweia dorilis*.—A few males on the slopes above Chekirgeh.

*Rumicia phlaeas*.—A few.

*Lampides boeticus*.—Common at Kestel and a few seen at Softa Boghan.

*Syntarucus telicannus*.—Frequent everywhere.

*Everes argiades*.—Fairly frequent in the meadow near Softa Boghan marsh. Less frequent elsewhere.

*Aricia medon*.—Frequent above the town but worn. Those taken were normal enough specimens of g.a. *calida*.

*Polyommatus anteros*.—Males only taken above Chekirgeh.

*P. icarus*.—Frequent everywhere.

*Celastrina argiolus*.—A few males, one very fresh, in hedges and orchards.

*Papilio machaon*.—A few seen; those taken were badly worn.

*Pieris brassicae*.—Not uncommon.

*P. rapae*.—Frequent.

*P. napi*.—Specimens both of a more or less typical form and of a *napaeae*-like form were taken.

*Pontia daplidice*.—Frequent.

*Colias edusa*.—Also frequent.

*Gonepteryx rhamni*.—A fine male seen at Kestel.

*Leptosia sinapis*.—Rare.

*Dryas pandora*.—A few worn specimens still out.

*Polygonia egea*.—One seen near the town.

*P. c-album*.—One fine 2nd brood specimen with very dark underside, as is the rule for this brood at Constantinople.

*Pyrameis cardui*.—Frequent.

*P. atalanta*.—One seen.

*Pararge megera*.—A few in moderate condition.

*P. aegeria*.—Frequent and usually in good order in shady places.

*Epinephele jurtina*.—Very worn females still frequent.

*Coenonympha pamphilus*, race *lyllus-marginata*.—Apparently going over. The only fresh specimens were females.

Total 33 species, a fair number for so late a date.

May I add a few geological notes. The ground on which I collected at Cordelio, near Smyrna, was alluvial on the lower levels, but limestone, Miocene or Pliocene, on the high slopes. At Buja the rock is Eocene or Oligocene. Between Burnabat and Manissa one passes through a belt of chalk country.

Panderma lies at the junction of three geological formations—Eocene limestone at Tut Liman, Pliocene or Miocene limestone to the S.W. of the town, and along the cliffs W. of the town a belt of what seems to be a Primary formation, possibly Devonian.

The coast at Mudania and the country inland as far as the marshes below Brusa is limestone, apparently Tertiary. The marshland is alluvial. The lower slopes of the mountains give the impression of limestone soil lying on metamorphic rock. The higher parts of the mountains are, largely at all events, granitic.

### Notes from West Sussex: Lepidoptera in 1920

By J. F. BIRD.

Having spent from the end of March to August 24th in Sussex, I send a few notes on my entomological experiences in that county hoping that they may be found of interest. Owing to various circumstances I regret that I was unable to do any dusking, or other night-work, therefore my observations refer, chiefly, to the local butterflies, and I may as well mention that most of my collecting was done in the district bounded by the rivers Adur and Arun. I found many of the butterflies abundant, and a feature of the season was the sudden appearance of numerous *Pyrameis cardui* and a good number of *P. atalanta* in May. During my five months' visit I met with 38 species of Rhopalocera, which I here place in the order of their appearance, with dates, and with a few notes added with reference to localities, variation, etc. During April I neglected to record the actual dates of the first appearance of the Lepidoptera observed, so I can only state that the five butterflies heading the list were all on the wing by the middle of that month.

*Pieris brassicae*.—Fairly common throughout the district. The second brood made its appearance on July 16th.

*P. rapae*.—Common. The second brood first recorded on July 13th.

*Euchloë cardamines*.—Plentiful in all the rural parts.

*Celastrina argiolus*.—Not common, and only seen in the neighbourhood of Worthing. The second brood was not observed.